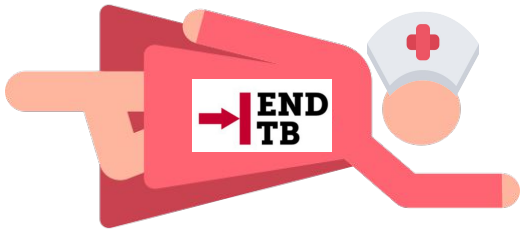
TB to the Rescue! Crosscutting TB Skills for Today's Health Care Worker

Immunization Conference: April 19, 2023

Cherie Stafford, TB Nurse Coordinator

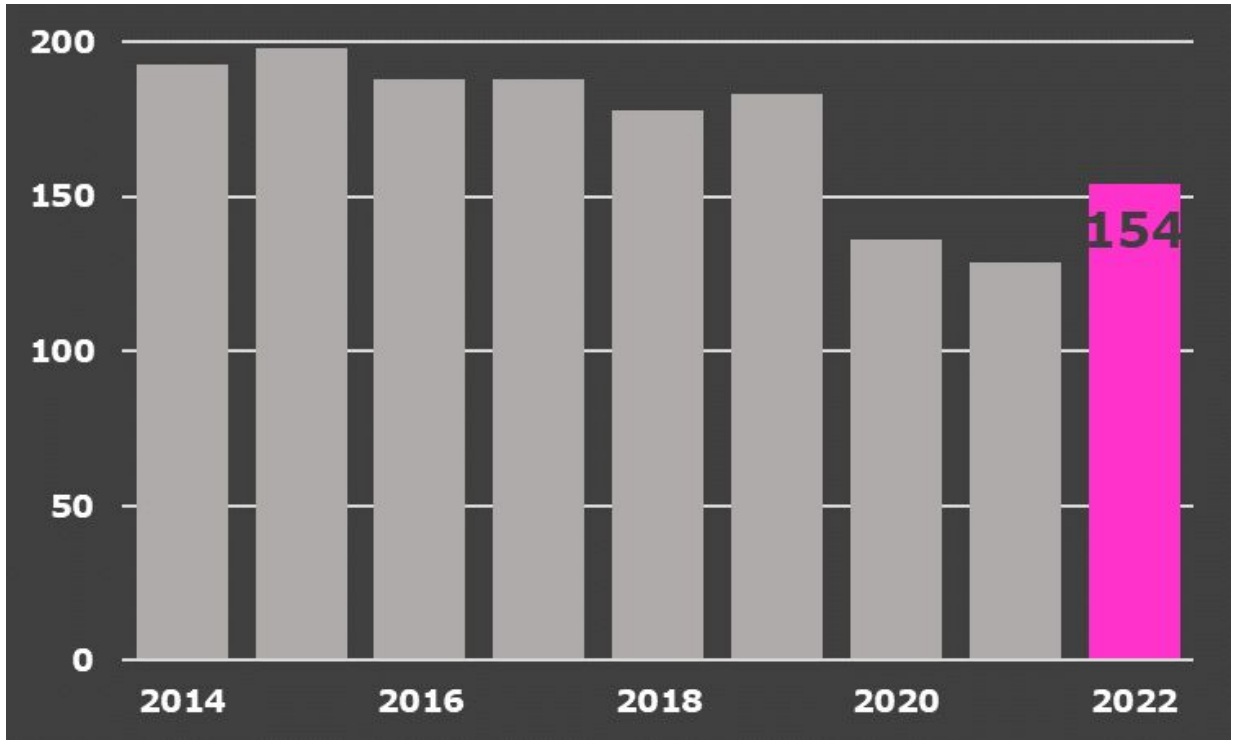
Arizona Department of Health Services



TB is rare in AZ, but remains relevant:

- **Tuberculosis (TB) is an Airborne Respiratory Disease:**
  - Participants will understand the core component's of a TB infection control policy
- **Media speculation: Did BCG protect against COVID?**
  - Participants will learn the latest on what US health care workers should know about the TB vaccine
- **TST skills for Mpox Vaccine:**
  - Participants will be able to access resources on how to administer and read Tuberculin Skin Tests (TST)

Tuberculosis (TB) remains relevant. . . Though rare in Arizona!

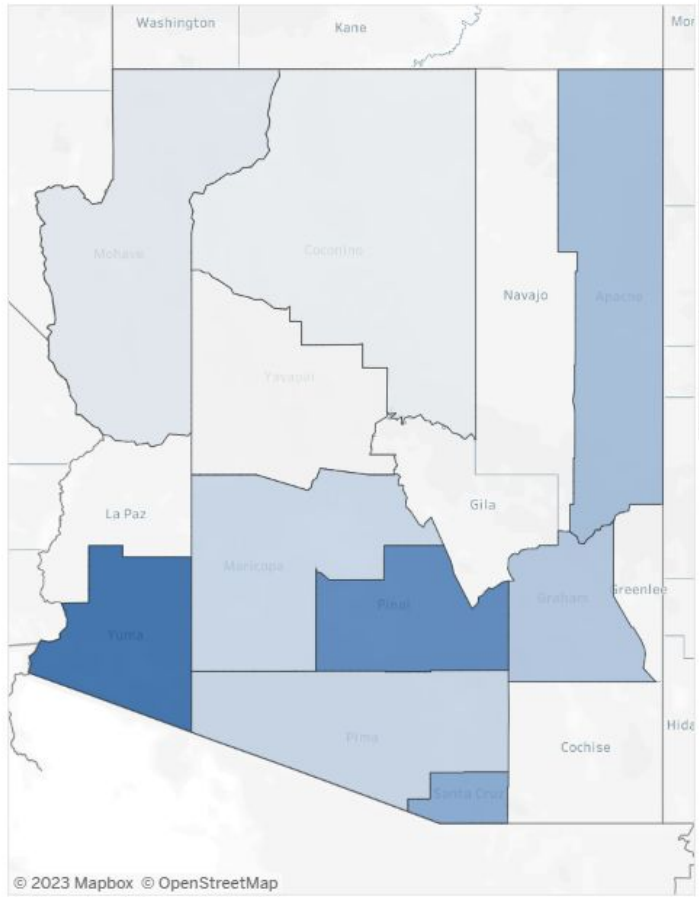


- Reported TB remains below pre-pandemic levels
- AZ case rate (2.11/100,000) is lower than National rate (2.5/100,000)
- Visit our New Dashboard for interactive maps and stats

Tuberculosis in Arizona

Select Year to Map Annual TB Data

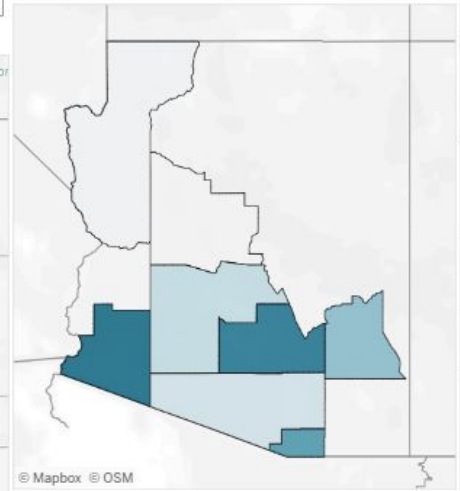
2022



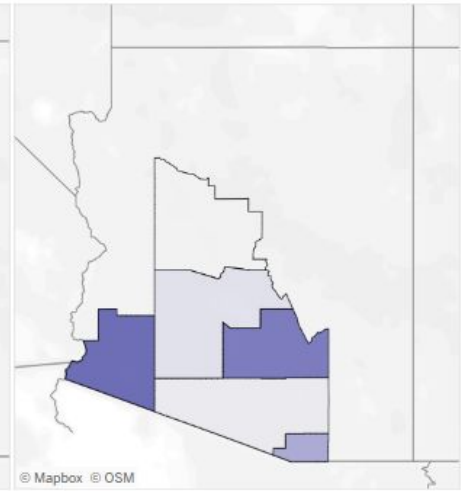
Incidence / 100,000

0.41 — 7.72

Pulmonary Culture (+)

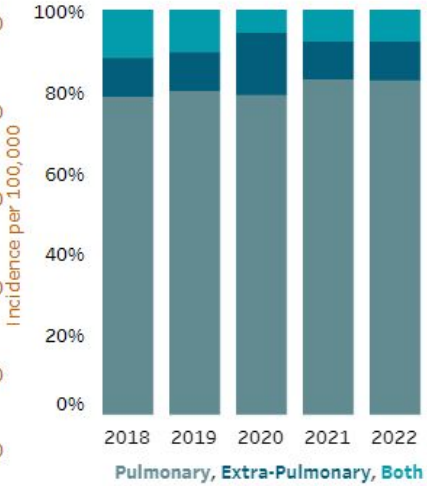


Sputum Smear (+) & Culture (+)

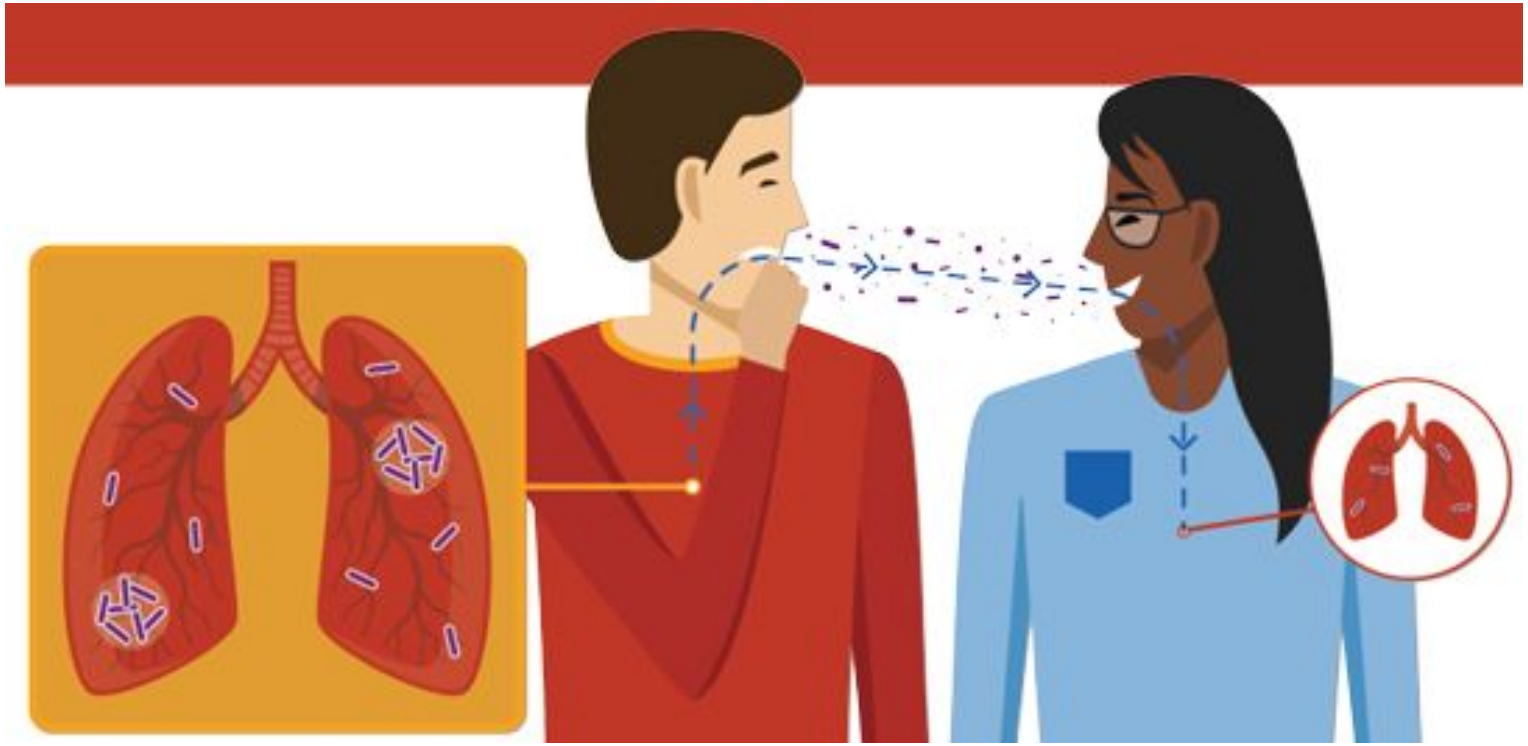


Annual Count and Incidence Rate

Site of Disease



For the full poster, go to CDC's website



Tuberculosis vs Respiratory Viruses

Similarities

- Can spread person to person via shared airspace
- Cough policy can reduce risk of transmission
- Surgical mask for those who are coughing (patients) reduces transmission risk
- N95 for those sharing airspace reduces risk of inhaling germ
- Environmental controls can decrease risk of spread

Differences

- TB is a slow growing bacteria
- TB has long incubation period- disease can develop months to years after infection
- TB has tests to show infection BEFORE illness develops
- TB disease is preventable by treating TB infection
- TB is Airborne; NOT spread by touch/contact/droplet

Masking: Surgical Mask decreases risk of transmission when worn by TB patient

Note: The most appropriate use for **surgical masks** (rather than a respirator) is for use on infectious persons with TB when they are outside of an AIIR (e.g., in transit to radiology or during an outpatient clinic visit). See **Figure 2**.

- The use of surgical masks on persons with TB has been shown to decrease transmission to guinea pigs by over 50%.
- Given the increased work of breathing associated with pulmonary TB, it may not be appropriate to ask persons with TB to wear respirators as they have more resistance to breathing than surgical masks.
- There may be circumstances where it may be reasonable to ask a person with TB to temporarily wear a surgical mask inside an AIIR (e.g., if a procedure is being done close to the head of that person). However, due to the benefit of rapid dilution ventilation in the AIIR, constant use of a mask by a patient inside an AIIR is not normally required.

FIGURE 2.

Surgical mask worn by person with infectious TB during transit through facility

Source: iStock.com/Sasirin Pamai

Tuberculosis Infection Control: A Practical Manual for Preventing TB | Curry International Tuberculosis Center (ucsf.edu)

Respirators protect the wearer

- Fit testing is key: [Tuberculosis Infection Control: A Practical Manual for Preventing TB | Curry International Tuberculosis Center (ucsf.edu)]

FIGURE 3. **Examples of N95 respirators**

Sources: CDC https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/free-n95-manufacturers.html and jocic/Shutterstock.com

- **Question: What if you can't do fit testing?**

No Fit Testing needed!
Train on use & maintenance

Warning: Not for patient use as this could spread TB to others

FIGURE 8.

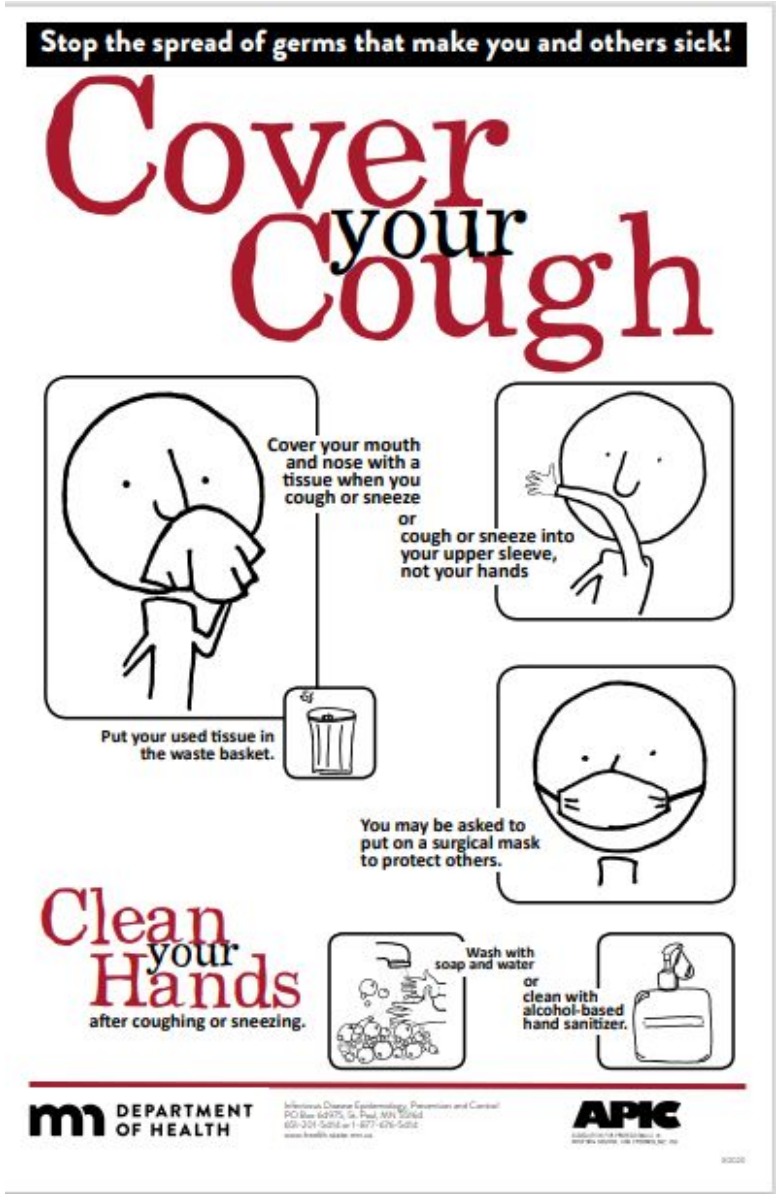
Controlled Air-Purifying Respirator (CAPR), a special type of Powered Air-Purifying Respirator (PAPR)

Source: CDC, courtesy of MaxAir

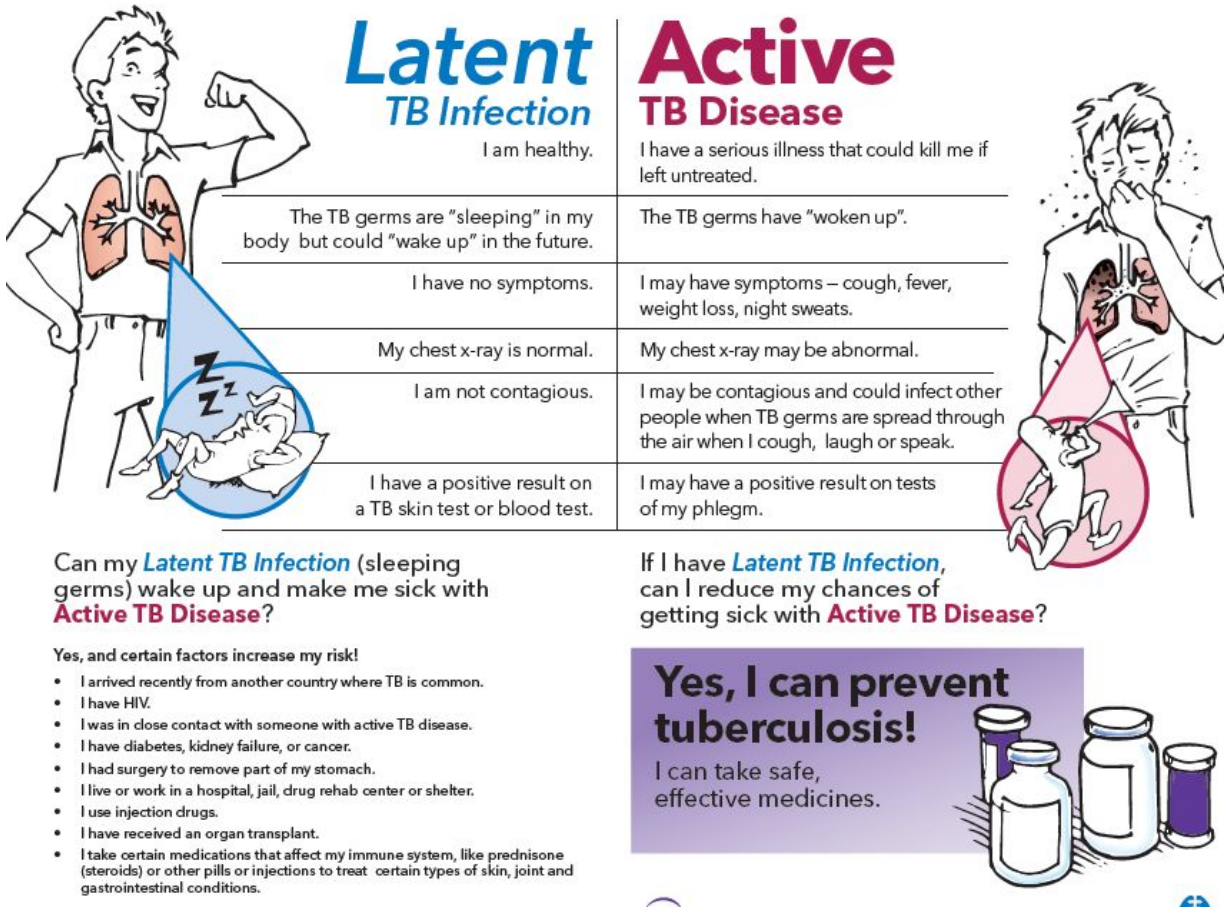
Powered Air-Purifying Respirators (PAPR)

Source: CDC https://phil.cdc.gov/Details.aspx?pid=23209 and 3M

[Healthy Habits to Help Protect Against Flu | CDC]



Note: Latent TB Infection cannot spread TB. . . Unless it progresses to TB disease



Latent TB Infection	Active TB Disease
I am healthy.	I have a serious illness that could kill me if left untreated.
The TB germs are "sleeping" in my body but could "wake up" in the future.	The TB germs have "woken up".
I have no symptoms.	I may have symptoms – cough, fever, weight loss, night sweats.
My chest x-ray is normal.	My chest x-ray may be abnormal.
I am not contagious.	I may be contagious and could infect other people when TB germs are spread through the air when I cough, laugh or speak.
I have a positive result on a TB skin test or blood test.	I may have a positive result on tests of my phlegm.

Can my *Latent TB Infection* (sleeping germs) wake up and make me sick with **Active TB Disease**?

Yes, and certain factors increase my risk!

- I arrived recently from another country where TB is common.
- I have HIV.
- I was in close contact with someone with active TB disease.
- I have diabetes, kidney failure, or cancer.
- I had surgery to remove part of my stomach.
- I live or work in a hospital, jail, drug rehab center or shelter.
- I use injection drugs.
- I have received an organ transplant.
- I take certain medications that affect my immune system, like prednisone (steroids) or other pills or injections to treat certain types of skin, joint and gastrointestinal conditions.

If I have *Latent TB Infection*, can I reduce my chances of getting sick with **Active TB Disease**?

Yes, I can prevent tuberculosis!

I can take safe, effective medicines.

TB in the Media: Did the TB vaccine account for differences in COVID among countries????

- Before COVID vaccines were available, BCG made the news:
  - "Tuberculosis Vaccine May Help Protect Against COVID-19"
- Strength of evidence was weak. . . (and mixed!)
  - Real world study needed: "BCG vaccination to reduce the impact of COVID-19 in healthcare workers (The BRACE Trial)": https://clinicaltrials.gov/ct2/show/NCT04327206
- BCG does boost innate immunity
  - "Study Shows that BCG Revaccination can boost Immune Efficacy of Covishield"
- However, BCG, unlike COVID vaccines, does **not** show evidence of specific protection against COVID
  - "Stop playing with data: there is no sound evidence that Bacille Calmette-Guérin may avoid SARS-CoV-2 infection (for now)"
  - WHO does NOT recommend vaccinating with BCG to protect against COVID

Safety and efficacy of BCG re-vaccination in relation to COVID-19 morbidity in healthcare workers: A double-blind, randomised, controlled, phase 3 trial

Caryn M. Upton,[a] Rob C. van Wijk,[b] Laurynas Mockeliunas,[b] Ulrika S.H. Simonsson,[b] Kirsten McHarry,[c] Gerben van den Hoogen,[a] Chantal Muller,[d] Arne von Delft,[e,f] Helene-Mari van der Westhuizen,[f] Reinout van Crevel,[g] Gerhard Walzl,[h] Pedro M. Baptista,[i] Jonathan Peter,[d,1] Andreas H. Diacon,[a,1] and The BCG CORONA Consortium*

Findings Between May 4 and Oct 23, 2020, we enrolled 1000 healthcare workers with a median age of 39 years (IQR 30–49), 70·4% were female, 16·5% nurses, 14·4% medical doctors, 48·5% had latent TB, and 15·3% had evidence of prior SARS-CoV-2 exposure. Hospitalisation due to COVID-19 occurred in 15 participants (1·5%); ten (66·7%) in the BCG group and five (33·3%) in the placebo group, hazard ratio (HR) 2·0 (95% CI 0·69–5·9, $p = 0·20$), indicating no statistically significant protection. Similarly, BCG had no statistically significant effect on COVID-19 ($p = 0·63$, HR = 1·08, 95% CI 0·82–1·42). Two participants (0·2%) died from COVID-19 and two (0·2%) from other reasons, all in the placebo group.

Interpretation BCG did not protect healthcare workers from SARS-CoV-2 infection or related severe COVID-19 disease and hospitalisation.

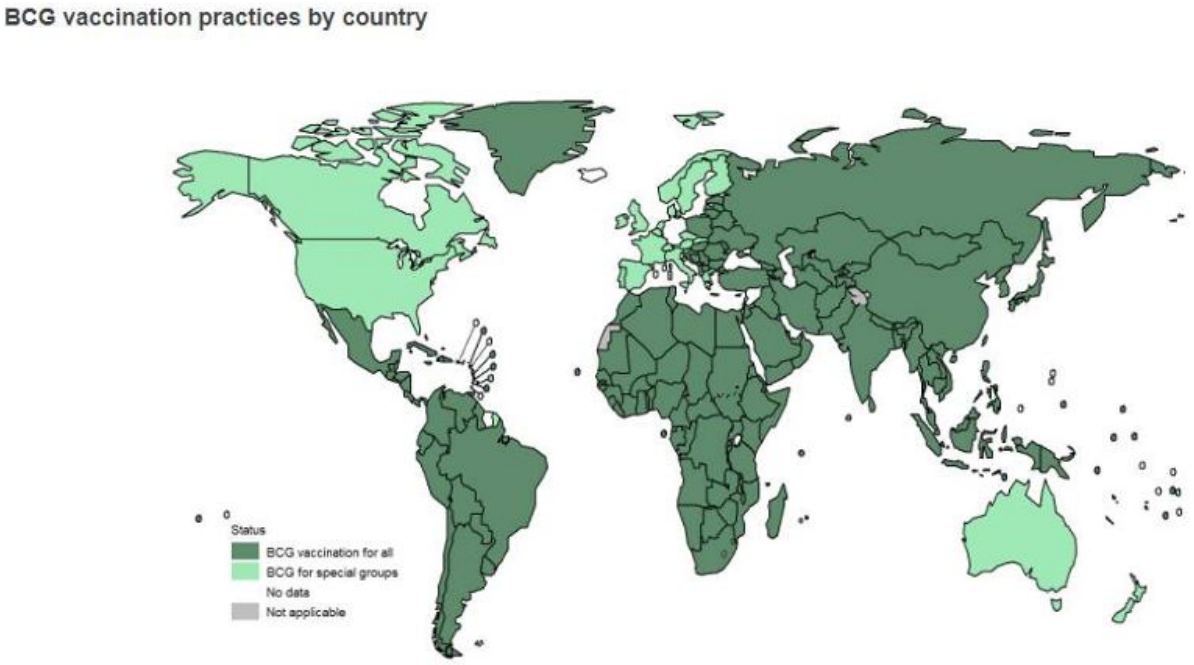
- https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(22)00144-4/fulltext?rss=yes

The TB Vaccine (BCG) & Trained Immunity

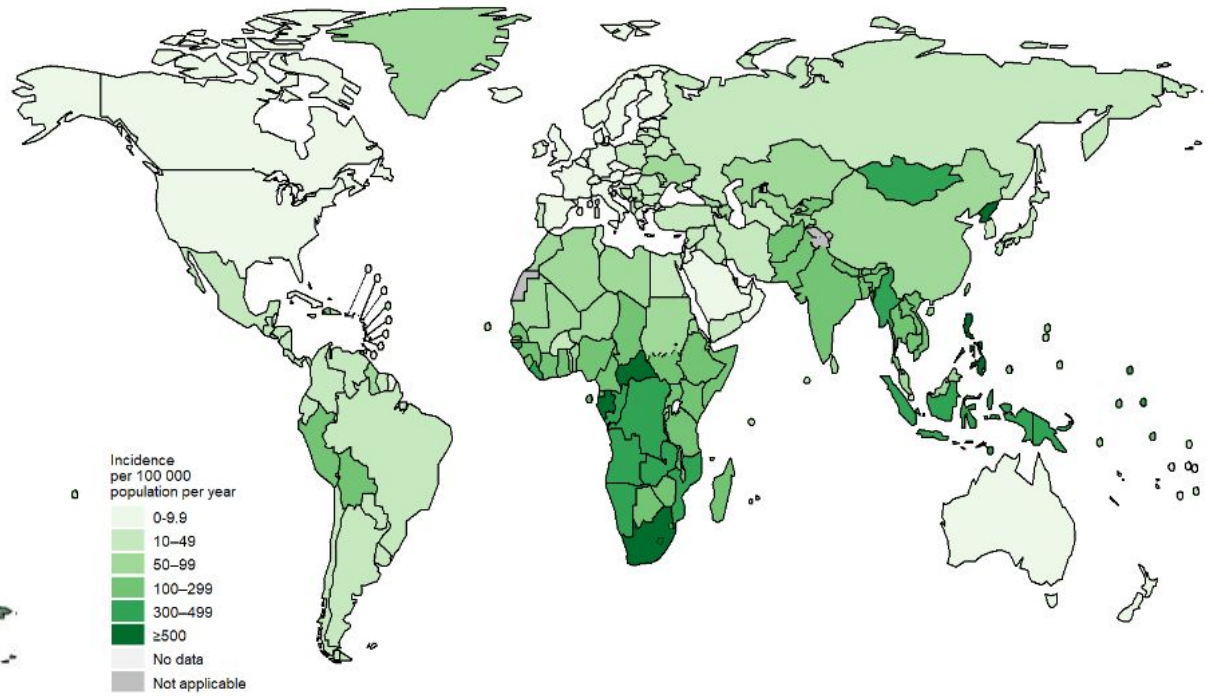
- BCG protects young children against the worst forms of TB (CNS involvement)
- BCG also seems to provide non-specific protection: early BCG reduced neonatal mortality by 40% in the first month in one West African study. However, a Danish study did not find the same result.
- BCG also provides protection against Leprosy (Hansen's disease)
- BCG is used for bladder cancer treatment
- BCG is being studied for improving glycemic control in type I Diabetes
- While it reduces the risk of TB, it does not provide life long protection against TB disease. (about 50% effective?)

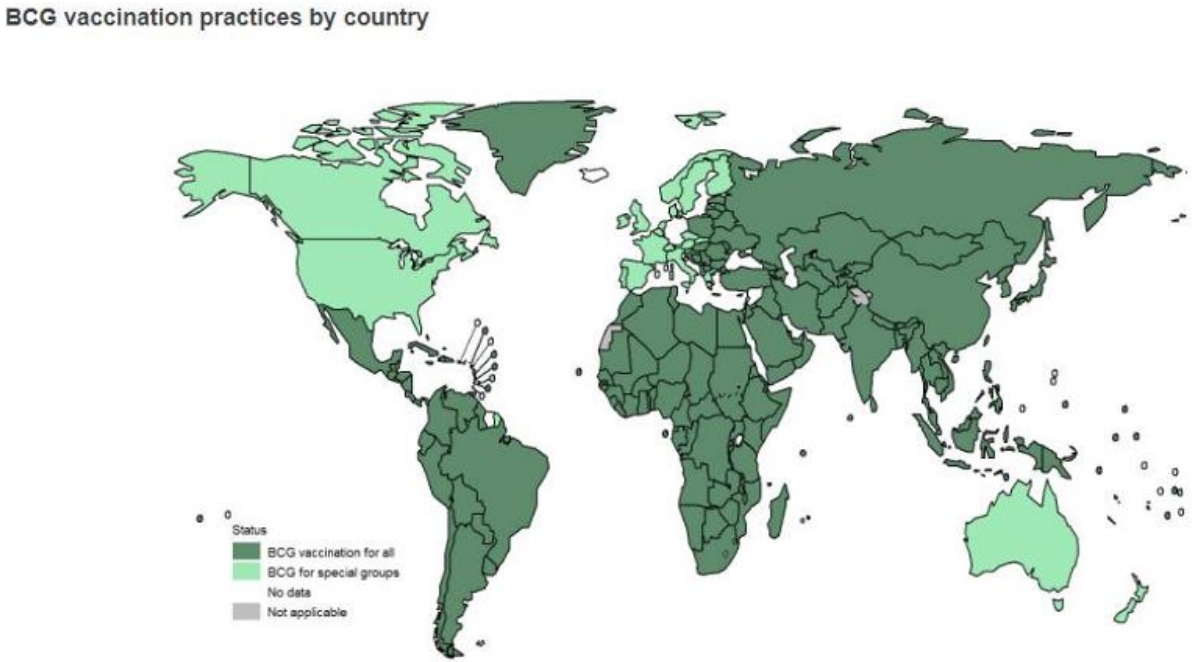
Who has given the BCG vaccine?

- ADHS is not aware of BCG vaccination being provided within Arizona
  - Contact me if you know otherwise: tb@azdhs.gov
- But it is given routinely outside of the US
- www.bcgatlas.org



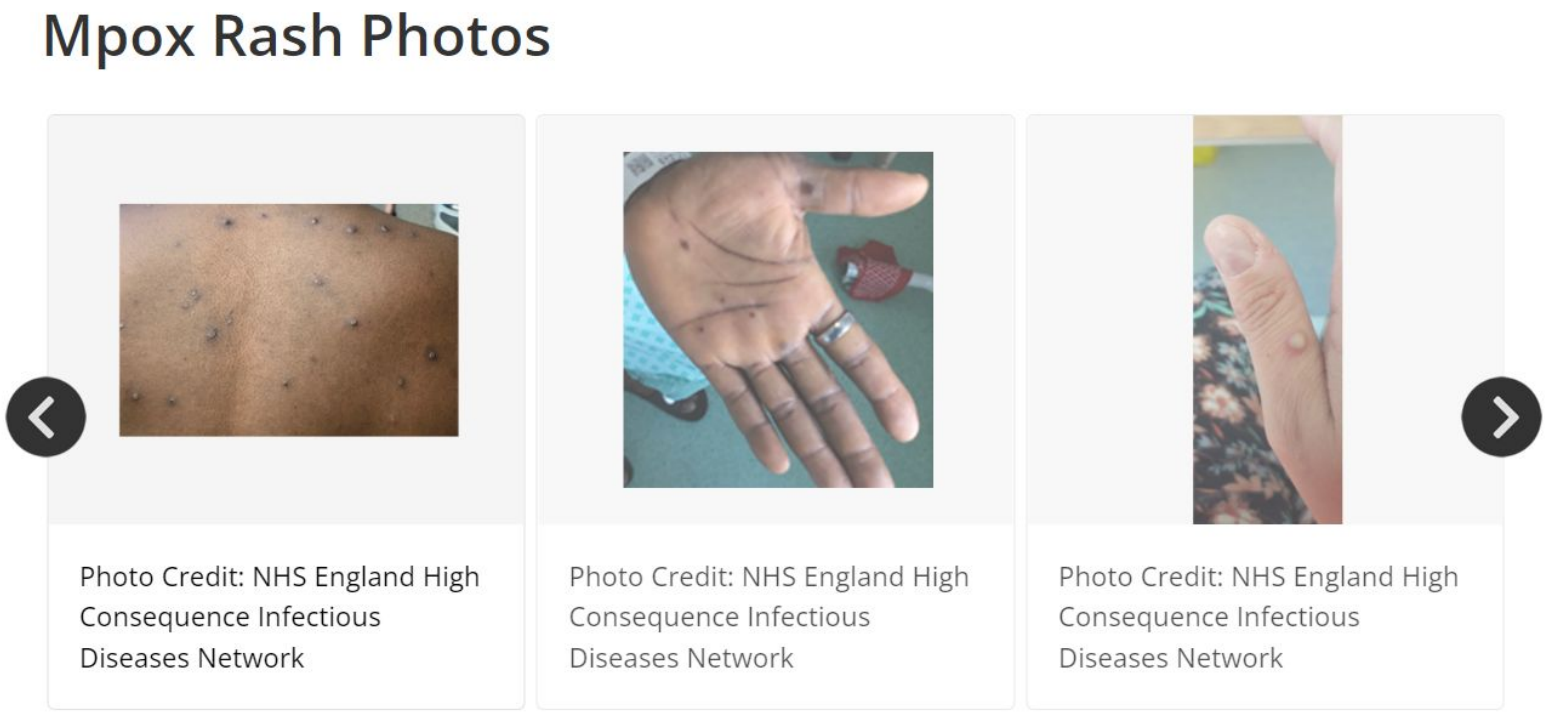
BCG reduces childhood morbidity and mortality. It is given in countries with community spread of TB





Mpox vaccination Poll: who participated?

- Intradermal?
- Subcutaneous?



https://www.cdc.gov/poxvirus/monkeypox/symptoms/index.html

How to place TST

1 ADMINISTRATION

To determine if a skin test should be administered, conduct a risk assessment for each patient that takes into consideration recent exposure to TB disease, clinical conditions that increase the risk for TB disease if infected, and the program's capacity to deliver treatment for latent TB infection.

1 Locate and clean injection site

2 to 4 inches below elbow joint

- Place forearm palm side up on a firm, well lit surface
- Select an area free of barriers to placing and reading (e.g., scars, sores)
- Clean the area with an alcohol swab

2 Prepare syringe

- Check expiration date on vial and ensure vial contains tuberculin (5 TU per 0.1 ml)
- Use a single-dose tuberculin syringe with a 1/4 - to 1/2-inch, 27-gauge needle with a short bevel
- Fill the syringe with 0.1 ml of tuberculin

3 Inject tuberculin

- Insert slowly, bevel up, at a 5- to 15-degree angle

- Needle bevel can be seen just below skin surface
- After injection, a tense, pale wheal should appear over the needle

4 Check skin test

- Wheal should be 6 to 10 mm in diameter. If not, repeat test at a site at least 2 inches away from original site

5 Record information

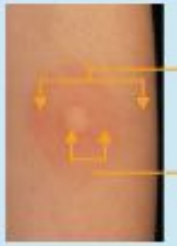
- Record all information required for documentation by your institution (e.g., date and time of test administration, injection site location, lot number of tuberculin)

How to read TST

2 READING

The skin test should be read between 48 and 72 hours after administration. A patient who does not return within 72 hours will probably need to be rescheduled for another skin test.

1 Inspect site



- Visually inspect site under good light

Erythema (reddening of the skin) - do not measure

Induration (hard, dense, raised formation)

2 Palpate induration

- Use fingertips to find margins of induration

3 Mark induration

- Use fingertip as a guide for marking widest edges of induration across forearm

4 Measure induration (not erythema)

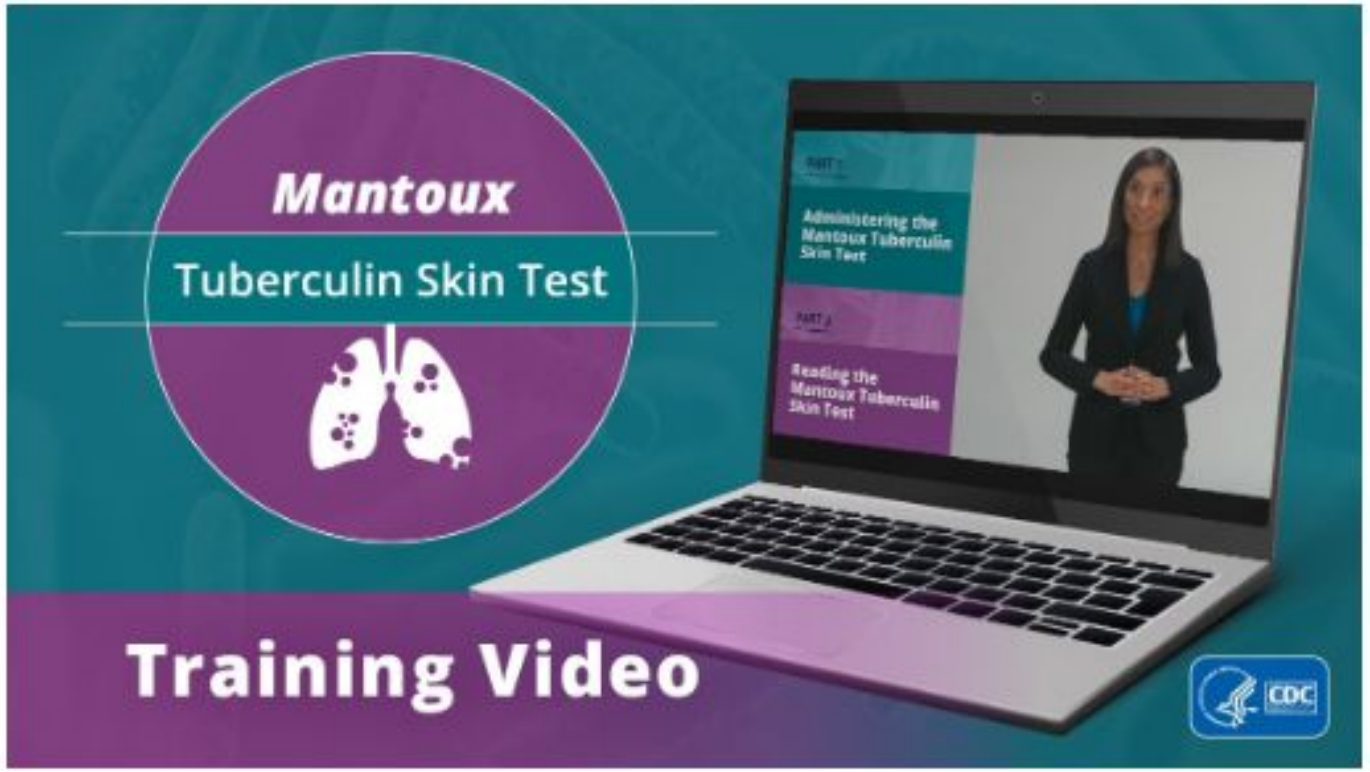
- Place "0" ruler line inside left dot edge
- Read ruler line inside right dot edge (use lower measurement if between two gradations on mm scale)

5 Record measurement of induration in mm

- If no induration, record as 0 mm
- Do not record as "positive" or "negative"
- Only record measurement in millimeters (mm)

https://www.cdc.gov/tb/publications/posters/default.htm

New Training Video available!



QA: Appendix F

Appendix F. Quality control (QC) procedural observation checklists

Quality Control (QC) Procedural Observation Checklist for Placing Tuberculin Skin Tests (TSTs) — Mantoux Method

Date _____ *Trainer (QC by)* _____ *Trainee (TST placed by)* _____

Scoring: ✓ or Y = Yes X or N = No NA = Not Applicable

1. Preliminary

_____ Uses appropriate hand hygiene methods before starting.
_____ Screens patient for contraindications (severe adverse reactions to previous TST).*
_____ Uses well-lit area.

2. Syringe† filled with exactly 0.1 mL of 5 tuberculin units (TU) purified protein derivative (PPD) antigen§

_____ Removes antigen vial from refrigeration and confirms that it is 5 TU PPD antigen.¶
_____ Checks label and expiration date on vial.
_____ Marks opening date on multidose vial.
_____ Fills immediately after vial removed from refrigeration.
_____ Cleans vial stopper with antiseptic swab.
_____ Twists needle onto syringe to ensure tight fit.
_____ Removes needle guard.
_____ Inserts needle into the vial.
_____ Draws slightly over 0.1 mL of 5 TU PPD into syringe.
_____ Removes excess volume or air bubbles to exactly 0.1 mL of 5 TU PPD while needle remains in vial to avoid wasting of antigen.
_____ Removes needle from vial.
_____ Returns antigen vial to the refrigerator immediately after filling.

3. TST administration site selected and cleaned

_____ Selects upper third of forearm with palm up ≥2 inches from elbow, wrist, or other injection site.**
_____ Selects site free from veins, lesions, heavy hair, bruises, scars, and muscle ridge.
_____ Cleans the site with antiseptic swab using circular motion from center to outside.
_____ Allows site to dry thoroughly before administering antigen.

4. Needle inserted properly to administer antigen

_____ Rests arm on firm, well-lit surface.
_____ Stretches skin slightly.††
_____ Holds needle bevel-up and tip at 5°–15° angle to skin.
_____ Inserts needle in first layer of skin with tip visible beneath skin.
_____ Advances needle until entire bevel is under the first layer of skin.
_____ Releases stretched skin.
_____ Injects entire dose slowly.
_____ Forms wheal, as liquid is injected.
_____ Removes needle without pressing area.
_____ Activates safety feature of device per manufacturer's recommendations, if applicable.
_____ Places used needle and syringe immediately in puncture-resistant container without recapping needle.
_____ Immediately measures wheal to ensure 6–10 mm in diameter (Actual wheal measurement _____mm).
_____ If blood or fluid is present, blots site lightly with gauze or cotton ball.
_____ Discards used gauze or cotton ball according to local standard precautions.
_____ If the TST is administered incorrectly (too deeply or too shallow) and the wheal is inadequate (<6 mm), a new TST should be placed immediately. Applying the second TST on the other arm or in a different area of the same arm (at least 2 inches from the first site) is preferable so that the TST result will be easier to read.
_____ Documents all information required by the setting (e.g., date and time of TST placement, person who placed TST, location of injection site and lot number of tuberculin).
_____ Uses appropriate hand hygiene methods after placing TST.

5. Explanation to the client regarding care instructions for the injection site

_____ The wheal (bump) is normal and will remain about 10 minutes.
_____ Do not touch wheal; avoid scratching.
_____ Avoid pressure or bandage on injection site.
_____ Rare local discomfort and irritation does not require treatment.
_____ May wash with soap and water (without pressure) after 1 hour.
_____ No lotions or liquids on site, except for light washing, as above.
_____ Keep appointment for reading.

* Severe adverse reactions to the TST are rare but include ulceration, necrosis, vesiculation, or bullae at the test site, or anaphylactic shock, which is substantially rare. These reactions are the only contraindications to having a TST administered.
† Use a ¼–⅝-inch 27-gauge needle or finer, disposable tuberculin (preferably a safety-type) syringe.
§ Prefilling syringes is not recommended. Tuberculin is absorbed in varying amounts by glass and plastics. To minimize reduction in potency, tuberculin should be administered as soon after the syringe has been filled as possible. Following these procedures will also help avoid contamination. Test doses should always be removed from the vial under strictly aseptic conditions, and the remaining solution should remain refrigerated (not frozen). Tuberculin should be stored in the dark as much as possible and exposure to strong light should be avoided. **SOURCE:** American Thoracic Society, CDC, Infectious Disease Society of America. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000;161:1376–95.
¶ Preventing tuberculin antigen and vaccine (e.g., Td toxoid) misadministration is important. Measures should include physical separation of refrigerated products, careful visual inspection and reading of labels, preparation of PPD for patient use only at time of testing, and improved record keeping of lot numbers of antigens, vaccines, and other injectable products. **SOURCE:** CDC. Inadvertent intradermal administration of tetanus toxoid–containing vaccines instead of tuberculosis skin tests. MMWR 2004;53:662–4.
** If neither arm is available or acceptable for testing, the back of the shoulder is a good alternate TST administration site.
SOURCE: National Tuberculosis Controllers Association, National Tuberculosis Nurse Consultant Coalition. Tuberculosis nursing: a comprehensive guide to patient care. Smyrna, GA: National Tuberculosis Controllers Association; 1997.
†† Stretch skin by placing nondominant hand of health-care worker (HCW) on patient's forearm below the needle insertion point and then applying traction in the opposite direction of the needle insertion. Be careful not to place the nondominant hand of the HCW opposite the administration needle if the patient is likely to move during the procedure, which might cause an accidental needle-stick injury to the HCWs. In children and others who are likely to move during the procedure, certain trainers prefer stretching the skin in the opposite direction of the needle insertion by placing the nondominant hand of the HCW under the patient's forearm. This method should not be used for persons with poor skin turgor.

Appendix F. (*Continued*) Quality control (QC) procedural observation checklists

Quality Control (QC) Procedural Observation Checklist for Reading Tuberculin Skin Test (TST) Results — Palpation Method

Date _____ **Trainer (QC by)** _____ **Trainee (TST placed by)** _____

Scoring: ✓ or Y – Yes X or N – No NA – Not Applicable

1. Preliminary

_____ Uses appropriate hand hygiene methods before starting.
_____ Keeps fingernails shorter than fingertips to avoid misreading TST result.
_____ Keeps TST reading materials at hand (eyeliner pencil or ballpoint pen,* and ruler).
_____ Uses well-lit area.
_____ Inspects for the site of the injection.

2. Palpate — finding margin ridges (if any)

_____ Palpates with arm bent at elbow at a 90° angle.
_____ Lightly sweeps 2-inch diameter from injection site in four directions.
_____ Uses zigzag featherlike touch.
_____ Repeats palpation with arm bent at elbow at a 45° angle to determine presence or absence of induration.

If induration is present, continue with these steps†:

3. Placing marks

_____ Holds palm over injection site.
_____ Cleanse site with antiseptic swab using circular motion from center to outside.
_____ Uses fingertips to find margins of the induration.
_____ Marks the induration by placing small dots on both sides of the induration.
_____ Inspects dots, repeats finger movements toward indurated margin, and adjusts dots if needed.
_____ Marks dots transverse (perpendicular) to long axis of forearm.

4. Placing and reading ruler

_____ Places the "0" ruler line inside the edge of the left dot. Reads the ruler line inside right dot edge (uses lower measurement if between two gradations on millimeter scale) (Figure 1).
_____ Uses appropriate hand hygiene methods after reading TST result.

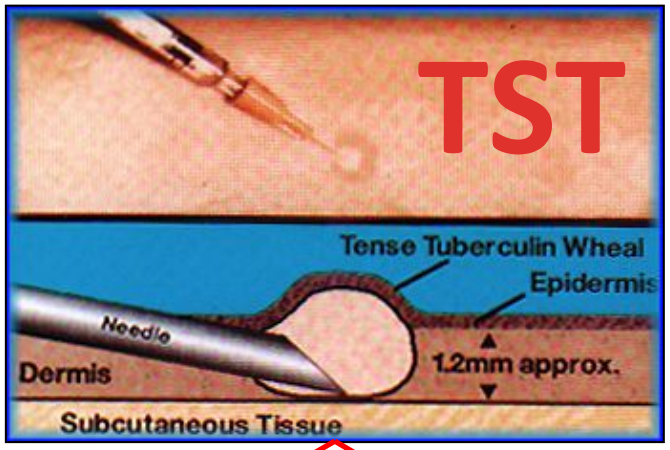
5. Documenting results

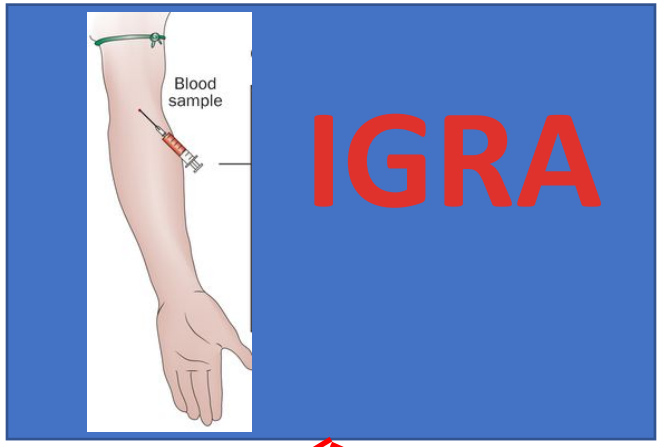
_____ Records all TST results in millimeters, even those classified as negative. Does not record only as "positive" or "negative." Records the absence of induration as "0 mm."
_____ Correctly records results in mm; only a single measured induration in mm should be recorded.
Trainee's measurement _____ mm.
Trainer's (gold standard) measurement _____ mm.
Trainee's result within 2 mm of gold standard reading?§
Yes _____ No _____

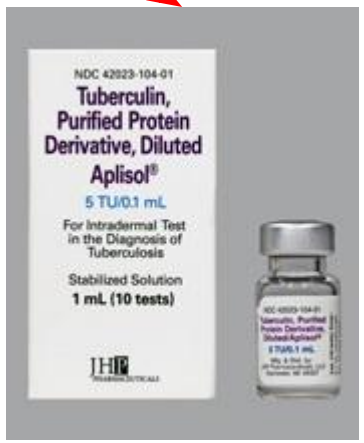
NOTE: In rare instances, the reaction might be severe (vesiculation, ulceration, or necrosis of the skin). Report severe adverse events to the FDA MedWatch Adverse Events Reporting System (AERS), telephone: 800-FDA-1088; fax: 800-FDA-0178; http://www.fda.gov/medwatch report form 3500, Physicians' Desk Reference.

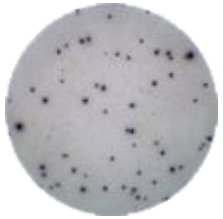
* A fine-tipped eyeliner pencil or ballpoint pen can be used as a marker. An eyeliner pencil is useful for TST training and for blinded independent duplicate readings (BIDRs) because the dots are easy to remove with a dot of lubricant (e.g., baby oil). Alternative TST result reading methods have been described, including the pen method.
† If induration is not present, record the TST result as 0 mm and go to the end of this form (Documenting results).
§ For example, if the TST trainer reads the TST result (the gold standard reading) as 11 mm, the trainee's TST reading should be between 9–13 mm to be considered correct.

The Options









T Spot

QFT

Which to choose?

Logistics Cost
Patient & Provider preference

Blood tests do not cross react with BCG: If history of BCG, best to use IGRA

Table 1. Comparison of the Interferon-Gamma Release Assay and Tuberculin Skin Test

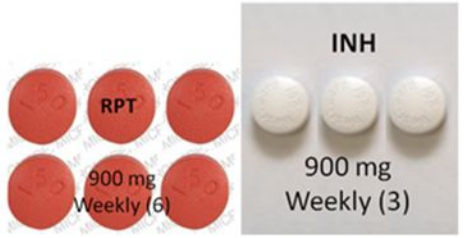
IGRA	TST
In vitro test, indirect	*In vivo* test, indirect
More specific antigens	Less specific antigens
Requires a blood test	Requires an intradermal test
Detects interferon-gamma release	Interpreted by induration, not erythema
A prior IGRA does not boost a subsequent IGRA; a prior TST can boost the IGRA after 72 hours and up to 6 months	A prior TST can boost a subsequent TST or IGRA
1 to 2 patient visits	2 to 4 patient visits
Fixed interpretation criteria	Risk-stratified interpretation
Results in 1 to 2 days (although batching extends the turnaround time)	Results in 2 to 3 days (10 days for two-step testing)
Not affected by BCG or most non-tuberculous mycobacteria	Cross-reacts with BCG and non-tuberculous mycobacteria
Standard laboratory reporting in medical records	Variability in where results are recorded

Section 1 : Testing and Treatment of Latent Tuberculosis Infection in the United States NSTC/NTCA Clinical Recommendations | February 2021

When should we test for TB Infection?

- Before immunosuppression (transplants/TNF-antagonist therapy) so that it can be treated
- Targeted testing for those who may have been exposed in the past (ex: immigration, binational well-child checks) to treat and prevent future disease
- Baseline testing for occupational health (ex: Health Care Personnel)
- Baseline testing for congregate settings
- Post exposure testing (contact your health department for advice)

Testing alone doesn't prevent TB. Treat Latent TB Infection to prevent TB disease.

Regimens for Treating LTBI (dosage shown based on adults weighing ≥ 50 kg)	Length of Treatment Number of Doses Number of Pills
	 Isoniazid and Rifapentine once a week for 12 weeks by DOT (12 doses, 108 pills)
	 Rifampin Every day for 4 months (120 doses, 240 pills)
	 Isoniazid Every day for 9 months (270 doses, 270 pills) *Fewer than 60% complete full course*

Latent Tuberculosis Infection Treatment Regimens

Treatment regimens for latent TB infection (LTBI) use isoniazid (INH), rifapentine (RPT), or rifampin (RIF). CDC and the National Tuberculosis Controllers Association preferentially recommend short-course, rifamycin-based, 3- or 4-month latent TB infection treatment regimens over 6- or 9-month isoniazid monotherapy.

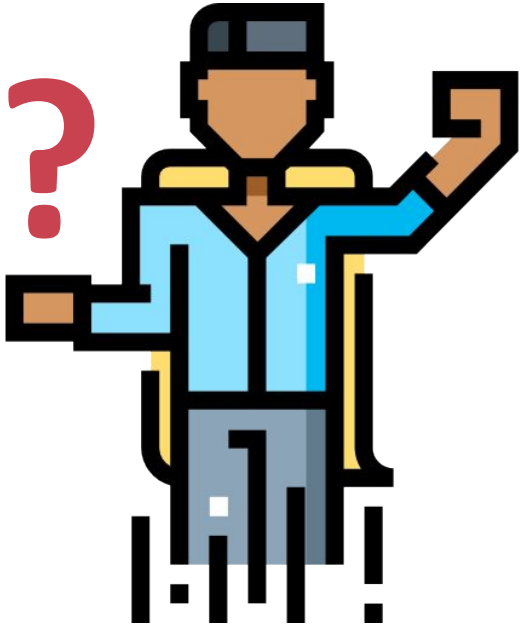
Clinicians should choose the appropriate treatment regimen based on drug susceptibility results of the presumed source case (if known), coexisting medical conditions (e.g., HIV*), and potential for drug–drug interactions.

https://www.cdc.gov/mmwr/volumes/69/rr/rr6901a1.htm?s_cid=rr6901a1_w

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	**ISONIAZID† AND RIFAPENTINE†† (3HP)**	3 months	Once weekly	12	**Adults and children aged ≥12 yrs** INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum
					Children aged 2–11 yrs INH†: 25 mg/kg; 900 mg maximum RPT††: See above
	RIFAMPIN§ (4R)	4 months	Daily	120	**Adults:** 10 mg/kg; 600 mg maximum
					Children: 15–20 mg/kg‖; 600 mg maximum
	ISONIAZID† AND RIFAMPIN§ (3HR)	3 months	Daily	90	**Adults** INH†: 5 mg/kg; 300 mg maximum RIF§: 10 mg/kg; 600 mg maximum
					Children INH†: 10-20 mg/kg#; 300 mg maximum RIF§: 15-20 mg/kg; 600 mg maximum
Alternative	**ISONIAZID† (6H/9H)**	6 months	Daily	180	**Adults** Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly¶	52	
		9 months	Daily	270	**Children** Daily: 10-20 mg/kg#; 300 mg maximum Twice weekly: 20–40 mg/kg#; 900 mg maximum
			Twice weekly¶	76	

*For persons with HIV/AIDS, see Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents Living with HIV available at: https://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv/367/overview.
†Isoniazid is formulated as 100-mg and 300-mg tablets.
††Rifapentine is formulated as 150-mg tablets in blister packs that should be kept sealed until use.
¶Intermittent regimens must be provided via directly observed therapy (i.e., a health care worker observes the ingestion of medication).
§Rifampin (rifampicin) is formulated as 150-mg and 300-mg capsules.
‖The American Academy of Pediatrics acknowledges that some experts use rifampin at 20–30 mg/kg for the daily regimen when prescribing for infants and toddlers (**Source**: American Academy of Pediatrics. Tuberculosis. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. Red Book: 2018 Report of the Committee on Infectious Diseases. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:829–53).
#The American Academy of Pediatrics recommends an INH dosage of 10–15 mg/kg for the daily regimen and 20–30 mg/kg for the twice weekly regimen.

CDC | LTBI Treatment Guidelines



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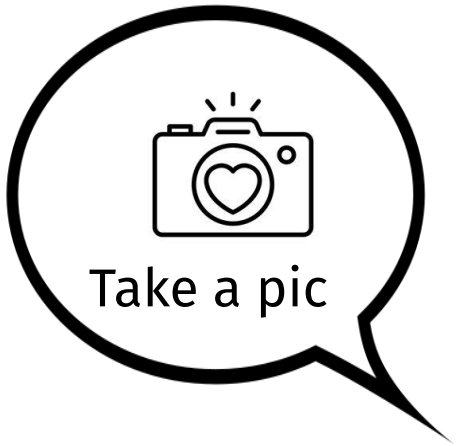

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